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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,711	03/28/2001	Kazuhiro Nakamura	012777-040	1302

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EXAMINER	
CHUNG, DAVID Y	

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 03/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/818,711	NAKAMURA ET AL.	
	Examiner	Art Unit	
	David Y. Chung	2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1, 2, 4, 5, 8, 10-15 and 17-23 rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. (U.S. 6,340,404).

As to claims 1 and 2, Oka et al. discloses an anti-glare layer having a fine uneven surface formed on a transparent substrate and a layer having a low refractive index formed thereon. Note in figure 12A, the substrate 11, anti-glare layer 12, and layer 13 having low refractive index.

Oka et al. does not teach an average mirror reflectance being less than 1.2 % or an average integral reflectance being less than 2.5 %. However, it was well known and obvious to make the reflection in the visible spectrum as low as possible, since the goal of an anti-reflection film is to minimize the amount of reflected light.

As to claims 4 and 5, Oka et al. does not teach the haze value as claimed by the applicant. However, it was well known and obvious that making the haze value too low

would lead to insufficient diffusion of light and making it too high would cause the image to be unclear. It would have been obvious to one of ordinary skill in the art at the time of invention design the anti-reflection film with the haze value claimed by the applicant, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As to claims 8 and 12, Oka et al. does not teach a low refractive index layer with the index of refraction as claimed by the applicant. However, this is a result effective variable. The index of refraction had to be in a range that was high enough for the film to be manufactured by conventional means, and low enough to exhibit satisfactory anti-glare effects. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to design the low refractive index layer with an index of refraction as claimed because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As to claims 10, 11, 13 and 14, Oka et al. teaches forming the anti-glare layer from a mixture of polymethyl methacrylate beads having a particle diameter of 5 μm, an ionizing radiation curing resin, and ultra-fine ZnO particles. See column 27, lines 5-15. Figure 17 is a cross-sectional view showing the layer construction of the anti-glare film of the present example.

As to claim 15, Oka et al. does not teach a low refractive index layer containing silicon oxide particles as the fine inorganic particles. However, silicon oxide particles were well known functionally equivalent alternatives to the zinc oxide particles disclosed by Oka et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use silicon oxide particles in the low refractive index layer because it was a functionally equivalent alternative to zinc oxide particles.

As to claims 17 and 18, Oka et al. does not teach the value of optical contact or value of clearness as claimed. The value of clearness and the value of optical contact are both result effective variables of maximizing the optical quality of the film versus manufacturing cost. It would have been obvious to one of ordinary skill in the art at the time of invention to manufacture a film with the value of clearness and the value of optical contact as claimed because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

As to claims 19-23, Oka et al. teaches that the disclosed optical film can be used on surfaces of polarizing plates used in liquid crystal displays. See column 1, lines 10-15.

Oka et al. does not teach putting the polarizing plate with the anti-glare and anti-reflection film on the outermost surface at the display side of a liquid crystal display. However, this was the conventional structure used in the vast majority of liquid crystal displays. The polarizing plate was usually formed on the outside of the display in order

to simply the manufacturing. The anti-reflection and anti-glare film had to be formed on the display side in order to reduce the amount of reflection and glare directed towards the viewer. It would have been obvious to one of ordinary skill in the art at the time of invention to form the polarizing plate with the anti-glare and anti-reflection film on the outermost surface of the display side of a liquid crystal display because it was conventional, and conventional structures had the benefits of having well-understood behavior and well established supply chains and manufacturing methodologies.

2. Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. (U.S. 6,340,404) in further view of Kurata (SID 1998).

Oka et al. does not teach the CIE coloration values of the reflected light. However, the CIE coloration values claimed by applicant describe reflected light having no coloration. Kurata teaches that one of the goals of a reflection film was to achieve neutralization of reflection hue. See page 44. It was well known and obvious to do this in order to create a display without colors being skewed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to make an anti-reflection film such that the reflected light had CIE values as claimed by applicant in order to achieve a display without colors being skewed.

3. Claims 6, 7 and 16 rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. (U.S. 6,340,404) in further view of Aoyama et al. (U.S. 6,383,620), Nakamura et al. (JP 9-288201), and Miyashita et al. (U.S. 5,759,643).

Oka et al. does not disclose a low refractive index layer composed of a fluorine-containing resin. However, Aoyama et al. discloses an anti-glare treatment consisting of applying a fluorine-containing polymer coating on the surface of a substrate. Nakamura et al. teaches a low refractive index layer 11 consisting of fine particles of fluorocarbon encased in a polymer binder. It was well known and obvious to use this type of material because it allowed the film to be designed with the desired index of refraction by controlling the density and spacing of the fluorine particles.

Oka et al. does not disclose the coefficient of friction of the low refractive index layer or the contact angle with water. However, Miyashita et al. teaches a fluorine-containing silane compound disposed on an anti-reflection layer for the benefit of preventing staining. This layer works by using a surfactant that controls the water contact angle and coefficient of friction. The setting of these values are result effective variables of maximizing the anti-staining properties versus the cost and optical properties. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to design the low refractive index layer with the coefficient of friction and water contact angle as claimed because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

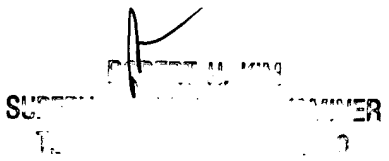
4. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Oka et al. (U.S. 6,340,404) in further view of Aoyama et al. (U.S. 6,383,620).

Oka et al. does not teach an anti-glare layer composed of a polymer cross-linked by ionization radiation. Aoyama et al. teaches that the strength and impact resistance

of a coated resin layer can be improved by methods such as cross-linking with isocyanates, silanes, epoxy compounds, etc. The cross-linking reaction can be accelerated by actinic rays such as UV rays, electron beams, etc. See column 8, lines 33-45. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use a polymer cross-linked by ionization radiation because of the improved strength and impact resistance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Chung whose telephone number is (703) 306-0155. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:00 pm.



David Chung
GAU 2871
03/19/03